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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/550,615	09/26/2005	Kazuaki Hiramatsu	529.45376X00	5430

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EXAMINER
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LESLIE, MICHAEL S

ART UNIT	PAPER NUMBER
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3745

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	04/18/2007	PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

## Office Action Summary

**Application No.**

10/550,615

**Applicant(s)**

HIRAMATSU ET AL.

**Examiner**

Michael Leslie

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-17 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-17 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 26 September 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  - ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |  |
|--|--|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413).<br>Paper No(s)/Mail Date. ____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | 5) <input type="checkbox"/> Notice of Informal Patent Application                        |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date <u>9/26/2005</u> . | 6) <input type="checkbox"/> Other: ____.   |

## **DETAILED ACTION**

### ***Claim Objections***

Claims 3 and 6 are objected to because of the following informalities: Claim 3, Line 2, -- low-- should be inserted before "friction"; Claim 6, lines 3-4; "is a cylindrical body which" should be deleted. Appropriate correction is required.

Claim 5 and 6 are objected to under 37 CFR 1.75(c) as being in improper form because a multiple dependent claim should refer to other claims in the alternative only. See MPEP § 608.01(n). Accordingly, the claims 5 and 6 have not been further treated on the merits.

### ***Claim Rejections - 35 USC § 112***

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 14-17 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 14-17 recite the limitation "said additional joint motion mechanism" in lines 1-2. There is insufficient antecedent basis for this limitation in the claim. It appears that claims 14-17 should depend from claim 13.

### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

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A person shall be entitled to a patent unless —

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-4 are rejected under 35 U.S.C. 102(b) as being anticipated by Takagi et al (4615260).

Takagi et al discloses a fluid pressure actuator having an inner tube (1) that expands and contracts as the fluid is fed and discharged, a mesh sleeve (2) covering the outer periphery of the inner tube and of which the diameter expands and of which the length contracts as the inner tube expands, and a low friction member (33) obtained by so knitting fine fibers as to possess expanding and contracting properties between the inner tube and the mesh sleeve, the low friction member being so arranged as to cover the inner tube. Wherein the low friction member has a coefficient of friction for the mesh sleeve, which is smaller than a coefficient of friction thereof for the inner tube, and the low friction member is obtained by knitting a synthetic fiber of a combination of a polyurethane core fiber and a nylon fiber so as to exhibit expanding/contracting property. (See Figs. 7-11).

### *Claim Rejections - 35 USC § 103*

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Takagi et al (4615260).

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Takagi et al discloses a fluid pressure actuator as described above with respect to claim 3, but does not explicitly teach that the synthetic fiber has a thickness of about 40 deniers.

Since applicant has not disclosed that having a synthetic fiber with a thickness of about 40 deniers solves any stated problem or is for any particular purpose above the fact that it is a standard fiber thickness and it appears that the synthetic fiber of Takagi et al would perform equally well with a thickness of about 40 deniers as claimed by applicant, it would have been an obvious matter of design choice to modify the fiber of Takagi et al by utilizing a synthetic fiber with a thickness of about 40 deniers as claimed for the purpose of forming the low friction member.

Claims 7 and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Takagi et al (4615260) in view of Paynter (4751869).

Takagi et al discloses a fluid pressure actuator as described above with respect to claim 1, but does not teach that the inner tube is formed having a noncircular shape in cross section having a plurality of ridge-like portions.

Paynter discloses a fluid pressure actuator having an inner tube formed having a noncircular shape in cross section having a plurality of ridge-like portions (66).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the actuator of Takagi et al by having the inner tube formed with a noncircular shape in cross section having a plurality of ridge-like portions as taught by Paynter for the purpose of an actuator with a high ration of axial length between the relaxed and actuated conditions.

Claims 9-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Johnson et al (5662693) in view of Takagi et al (4615260).

Johnson et al discloses a CPM device having a base member (100) and a turning member (103), and a first joint motion mechanism including an actuator (102). Wherein the turning member is provided with an additional joint motion mechanism (106). Wherein the additional joint motion mechanism is a second joint motion mechanism that is provided on said turning member, and effects the joint motion between the portion moved by said turning member and the portion beyond thereof (Fig. 1a). Johnson et al further teaches that the actuator is a fluid pressure actuator, but does not teach the details of the actuator.

Takagi et al discloses a fluid pressure actuator having an inner tube (1) that expands and contracts as the fluid is fed and discharged, a mesh sleeve (2) covering the outer periphery of the inner tube and of which the diameter expands and of which the length contracts as the inner tube expands, and a low friction member (33) obtained by so knitting fine fibers as to possess expanding and contracting properties between the inner tube and the mesh sleeve, the low friction member being so arranged as to cover the inner tube. Wherein the low friction member is obtained by knitting, in a circumferential direction without seam, a synthetic fiber of a combination of a polyurethane core fiber and a nylon fiber so as to exhibit expanding/contracting property.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the actuator of Johnson et al by having the actuator include an inner tube that expands and contracts as the fluid is fed and discharged, a mesh sleeve covering the outer periphery of the inner tube and of which the diameter expands and of which the length

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contracts as the inner tube expands, and a low friction member obtained by so knitting fine fibers as to possess expanding and contracting properties between the inner tube and the mesh sleeve, the low friction member being so arranged as to cover the inner tube, wherein the low friction member is obtained by knitting, in a circumferential direction without seam, a synthetic fiber of a combination of a polyurethane core fiber and a nylon fiber so as to exhibit expanding/contracting property as taught by Takagi et al for the purpose of increasing the maintenance interval of the CPM device with respect to the actuator.

Claims 15 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Johnson et al (5662693) in view of Takagi et al (4615260) as applied to claim 13 above, and further in view of Culhane et al (WO 0168028).

Johnson et al, as modified, discloses a CPM device as described above with respect to claim 13, but does not teach that the additional joint motion mechanism is a third joint motion mechanism for turning the portion moved by the turning member and the portion beyond thereof inward and outward simultaneously.

Culhane et al discloses a CPM device having a base member (24) and a turning member (64, 66, 72), and a first joint motion mechanism including an actuator (40, 42). Wherein the turning member is provided with an additional (third) joint motion mechanism (70) for turning the portion moved by the turning member and the portion beyond thereof inward and outward simultaneously.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the CPM device of Johnson et al, as modified, by having the CPM

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device include a third joint motion mechanism for turning the portion moved by the turning member and the portion beyond thereof inward and outward simultaneously as taught by Culhane et al for the purpose of rehabilitating an arm.

In further regard to claim 17, Johnson et al, as further modified, would further include the additional joint motion mechanism, being provided on the turning member, having two or more joint motion mechanisms out of a second joint motion mechanism that effects the joint motion between the portion moved by the turning member and the portion beyond thereof, a third joint motion mechanism for turning the portion moved by the turning member and the portion beyond thereof inward and outward simultaneously, and a fourth joint motion mechanism provided between the base member and the turning member to effect the joint motion for the root portion of the portion supported by the turning member.

Claims 16 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Johnson et al (5662693) in view of Takagi et al (4615260) as applied to claim 13 above, and further in view of Kawada (JP 07204233).

Johnson et al, as modified, discloses a CPM device as described above with respect to claim 13, but does not teach that the additional joint motion mechanism is a fourth joint motion mechanism provided between said base member and said turning member to effect the joint motion for the root portion of the portion supported by said turning member.

Kawada discloses a CPM device having a base member (11) and a turning member (12), and a first joint motion mechanism including an actuator (~19a). Wherein the turning member is provided with an additional (fourth) joint motion mechanism (~25; ~30) provided between said



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base member and said turning member to effect the joint motion for the root portion of the portion supported by said turning member. (Fig. 2).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the CPM device of Johnson et al, as modified, by having the CPM device a fourth joint motion mechanism provided between said base member and said turning member to effect the joint motion for the root portion of the portion supported by said turning member as taught by Kawada for the purpose of rehabilitating an arm.

In further regard to claim 17, Johnson et al, as further modified, would further include the additional joint motion mechanism, being provided on the turning member, having two or more joint motion mechanisms out of a second joint motion mechanism that effects the joint motion between the portion moved by the turning member and the portion beyond thereof, a third joint motion mechanism for turning the portion moved by the turning member and the portion beyond thereof inward and outward simultaneously, and a fourth joint motion mechanism provided between the base member and the turning member to effect the joint motion for the root portion of the portion supported by the turning member.

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael Leslie whose telephone number is (571) 272-4819. The examiner can normally be reached on M-F 8:00am - 4:30pm.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Edward Look can be reached on (571) 272-4820. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

ML  
April 12, 2007

  
**Michael Leslie**  
**Primary Examiner**  
**AU 3745**